

AF1742
PATENT \$

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND
INTERFERENCES

Docket No.: STREUBEL



In re PATENT Application of:

W. STREUBEL & W. CHRISTOPHLIEMKE

) Examiner: Wilkins III, H. D.

Appl. No: 09/651,431

) Group Art Unit: 1742

Filed: August 30, 2000

For: METHOD OF MANUFACTURING A
BENDING-RESISTANT TORSIONALLY
YIELDING TUBULAR PROFILED MEMBER

ASA TRANSVERSE SUPPORT etc.

12/12/2003 DTESSEM1 00000065 09651431

01 FC:1402

330.00 DP

BRIEF OF APPEAL

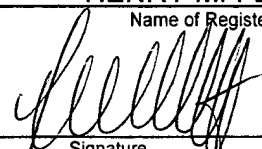
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330.00 DP

Commissioner for Patents
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| I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450", on <u>December 9, 2003</u> . | |
| (Date) | |
| HENRY M. FEIEREISEN | |
| Name of Registered Representative | |
|  | 12-9-2003 |
| Signature | Date of Signature |

This is an appeal from the final rejection of claims 1, 3, 6, 7, 9, and 12-17 by the Primary Examiner. The Brief is being filed in triplicate under the provisions of 37 C.F.R. 1.192. A check in the amount of \$330.00 to cover the requisite fee set forth in §1.17(c) is attached.

To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. The Commissioner is hereby authorized to charge fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment to Deposit Account No. 06-0502.

(1) REAL PARTY IN INTEREST

The above-referenced patent application has been assigned to Benteler AG, the real party in interest.

(2) RELATED APPEALS AND INTERFERENCES

There are no and there have been no related appeals or interferences.

(3) STATUS OF CLAIMS

The following claims are on appeal:

Claims 1, 3, 6, 7, 14, 15 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 4,787,680 to Bonjean et al. in view of U.S. Pat. No. 4,582,259 to Hoover, Metals Handbook Vol. 1 and ASM Handbook Vol. 5.

Claims 9, 12, 13 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bonjean et al. in view of Hoover, ASM Handbook Vol. 4 and ASM Handbook Vol. 5.

(4) STATUS OF AMENDMENTS

No amendment under 37 C.F.R §1.116 has been filed.

(5) SUMMARY OF INVENTION

The present invention refers to a method to produce a particular element in a twist beam axle for motor vehicles, namely a torsionally-yielding profiled member with rigid end sections, whereby a particular focus is directed to the properties of the transition sections between the midsection of the profiled member and the end sections thereof (paragraph bridging pages 7 and 8). As set forth in claim 1, after cold forming a tube blank to a profiled member, the transitional sections are subjected to an annealing process at a temperature level between 850 °C and 960 °C, before the profiled member is hardened above the AC3 point, tempered, and surface hardened (paragraph bridging pages 11 and 12). As an alternative, set forth in claim 9, the transitional sections are subjected, following the cold forming step, to a case-hardening process (page 7, lines 3, 4). In either embodiment of the present invention, a tubular profiled member for a twist beam rear axle is produced that is bending-resistant and torsionally yielding, with the transitional sections between the midsection of the profiled member and the end sections thereof exhibiting desired properties.

(6) ISSUES

Issue 1-Whether claims 1, 3, 6, 7, 14, 15 and 16 are patentable under 35 U.S.C. §103 over Bonjean et al. in view of Hoover, Metals Handbook Vol. 1 and ASM Handbook Vol. 5?

Issue 2-Whether claims 9, 12, 13 and 17 are patentable under 35 U.S.C. §103 over Bonjean et al. in view of Hoover, Metals, ASM Handbook Vol. 4 and ASM Handbook Vol. 5?

(7) GROUPING OF CLAIMS

As to the rejection applied against claims 3, 6, 7, 14-16 under 35 U.S.C. §103(a), it is appellant's intention that these claims stand or fall together with claim 1.

As to the rejection applied against claims 12, 13, 17 under 35 U.S.C. §103(a), it is appellant's intention that these claims stand or fall together with claim 9.

(8) ARGUMENT

Issue 1-Whether claims 1, 3, 6, 7, 14, 15 and 16 are patentable under 35 U.S.C. §103 over Bonjean et al. in view of Hoover, Metals Handbook Vol. 1 and ASM Handbook Vol. 5?

Bonjean et al. describes a process for producing a U-shaped semi-rigid, one-piece axle, using a single length of a metal tube, in which the central region thereof is deformed so as to impart thereto the form of a rectilinear shaped member which forms the transverse portion of the axle. The tubular portion

beyond each end of the profiled region is bent substantially at a right angle, to form the axle arms. Fixed at the ends of the axle arms are stub axles on which the wheels will be mounted (col. 2, lines 17 to 29). As further noted in col. 1, lines 15 to 17, the axle according to Bonjean is made by a shaping process only, whereby the focus of the disclosure is directed to the characteristics of the transverse portion and the axle arms. As noted in col. 4, lines 29 to 39, "*an axle [] was produced, which complies with the following characteristics:*" and Bonjean et al. then continues to specify the properties of the transverse portion and axle arms. Nothing relates in any way in this passage nor in any other passage of the disclosure to the area of the bends between the transverse portion and the axle arms. In other words, Bonjean et al. is completely silent as to the properties of the bent sections, i.e. transition sections. In addition, Bonjean et al. fails to describe any heat treatment steps, let alone with respect to the bent sections.

The Examiner does point out, however, that Bonjean et al. "*teach (see col. 4, lines 43-47) that further total or localized heat treatment may be performed*". Hereby, the Examiner appears to ignore that Bonjean et al. contemplates the application of a heat treatment only **after** the axle has been produced by the shaping process. Apart from the fact that Bonjean et al. fails to provide any specifics other than setting forth that heat treatment is available to enhance mechanical characteristics, the heat treatment is intended, if at all, only after the axle has been produced. Moreover, as Bonjean et al. is concerned with the characteristics of the transverse portion and the axle arms (see col. 4, lines 29 to 39) only, a person skilled in the art will not be motivated by the

disclosure to subject the bent sections to a heat treatment process, let alone to provide a heat treatment step at the particular temperature ranges in the combination of method steps, as set forth in claim 1.

The Examiner appears to use appellant's own disclosure and appellant's recognition of the criticality of the transition sections, when opining on page 8, paragraph 4 of the Final Office Action that the artisan would apply the appropriate hardening process for the transitional sections "*because the transitional sections would be subjected to the worst fatigue conditions*". Bonjean et al. does neither expressly nor implicitly assign any criticality to the bent sections. It is believed that the Examiner misinterpreted the Bonjean et al. reference, and fell in this case into the hindsight trap "wherein that which only the inventor taught is used against its teacher". In particular, the Examiner failed to appreciate appellant's recognition of a problem related to the transitional sections that Bonjean et al. was completely unaware, and failed to appreciate appellant's discovery of a solution to this problem.

The Examiner asserts further that Bonjean et al. fails to teach a deformation step through cold-forming (page 2, third line from the bottom of the Final Office Action) but refers to the Hoover et al. reference and states that Hoover et al. "*teach [] a conventional method of deforming a tube that is conventionally called press forming*". Hoover et al. describes a method of forming a spray nozzle along a fluid conduit by forming a hole into a tube, providing a countersink for the hole, and depressing inwardly a portion of the tube along a line passing over the hole. While acknowledging that Bonjean et al. merely

teaches shaping the U-shaped axle by deformation, without providing any further information (page 8, last paragraph of Final Office Action), the Examiner contends that an artisan would be motivated to look at Hoover et al. Appellant respectfully disagrees. Although Hoover et al. describes a depressing step, this step is applied in conjunction with the provision of a hole so that the depression and the hole together form a spray nozzle (col. 3, 3 to 5). It is applicants' belief that a person skilled in the art of twist beam rear axles of motor vehicles, as the present invention is directed to, would not consider a reference that relates to spray nozzles, and combine the Bonjean et al. and Hoover et al. references in the manner suggested by the Examiner, because the provision of holes in the structure, as taught by Hoover et al., would contradict the desire to provide transitional sections with suitable properties. It is well established that there must be some motivation to combine the references to create the case of obviousness, and a showing that a skilled artisan, confronted with the problems as the inventor, would select the elements from the cited prior art references. It is applicant's contention, that the Examiner failed to explain the motivation one with no knowledge of applicant's invention would have to combine the references in a manner suggested.

The Examiner asserts further that Bonjean et al. fails to teach an annealing step (page 2, penultimate line of the Final Office Action) but refers to Metals Handbook Vol. 1 and in particular to page 390, col. 3, last paragraph, where a reference is made to a heating step to about 900 °C, and then contends that an artisan would be motivated to look at Metals Handbook Vol. 1 *"to apply*

the annealing step [] to [] the transitional section as claimed.". Apart from the fact that the referred-to passage in Metals Handbook Vol. 1 merely states general teaching about subjecting carbon steels to heat treatment, it is noted that the application of a heat treatment step per se is not the subject matter of claim 1, as the Examiner appeared to imply, as the Examiner ignored the nexus between the annealing step and the transitional sections. As stated above, claim 1 sets forth a particular combination of process steps to make a profiled member for a twist beam rear axle, and in particular is concerned with the area of the transitional sections which are subjected to an annealing process at a temperature level between 850 °C and 960 °C. Moreover, appellant disagrees that an artisan would be motivated to make the combination, as suggested by the Examiner, because Bonjean et al. fails to recognize the criticality of the transitional (bent) sections, and indeed, fails to make any reference to characteristics of the bent sections. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. In re Gordon, 733 F.2d at 902.

It is also noted by appellant that the Examiner applied 4 prior art references in an attempt to produce the present invention. This is an indication that the Examiner tried to piece together the teachings of the prior art to render the claimed invention obvious. However, it is well established that the fact that individual elements of the present invention can be found in the prior art is not determinative as to the question of obviousness. As stated by the Federal Circuit

in *In re Rouffet*, 47 USPQ2d, 1453, 1457 “Most, if not all, inventions are combinations and mostly of old element. Therefore, an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be an illogical and inappropriate process by which to determine patentability.”

Thus, there must be some motivation to combine the references to create the case of obviousness, and a showing that a skilled artisan, confronted with the problems as the inventor, would select the elements from the cited prior art references.

It is applicant's contention, that the Examiner failed to make a prima facie case of obviousness and failed to explain the motivation one with no knowledge of applicant's invention would have to combine the references in a manner suggested.

It is therefore respectfully submitted that the rejection of claim 1 under 35 U.S.C. 103(a) should be reversed.

As for the rejection of the dependent claims 3, 6, 7, 14, 15 and 16, these claims are considered allowable by virtue of their dependencies from claim 1.

It is therefore respectfully submitted that the rejection of claims 1, 3, 6, 7, 14, 15 and 16 under 35 U.S.C. 103(a) should be reversed.

Issue 2-Whether claims 9, 12, 13 and 17 are patentable under 35 U.S.C. §103 over Bonjean et al. in view of Hoover, Metals, ASM Handbook Vol. 4 and ASM Handbook Vol. 5?

The Bonjean et al. and Hoover et al. references have been discussed above in detail, and the same arguments apply here so that a repetition thereof is omitted for sake of convenience. Claims 9, 12, 13 and 17 are patentable over the applied references in view of the shortcomings of Bonjean et al. and Hoover et al., as discussed above.

The Examiner acknowledged that Bonjean et al. fails, i.e., to teach a case hardening step (page 6, 2nd paragraph of the Final Office Action) but refers to Metals Handbook Vol. 5 and in particular to page 948-949, which sets forth a glossary of terms to define, among others, the term "case hardening". The Examiner contends that "*it would have been obvious to one of ordinary skill in the art to have made the axle of Bonjean et al from a case hardening steel in order to ensure the ability of the axle to be surface hardened by a case hardening method.*" Apart from the fact that the referred-to passage in Metals Handbook Vol. 5 merely provides a general definition of the term "case hardening", it is noted that the application of a case hardening step per se is not the subject matter of claim 9, as the Examiner appeared to imply, as the Examiner ignored the nexus between the case hardening step and the transitional sections.

Moreover, it is appellant's contention that an artisan would not be motivated to make the combination, as suggested by the Examiner, because

Bonjean et al. fails to recognize the criticality of the transitional (bent) sections, and indeed, fails to make any reference to characteristics of the bent sections.

It is therefore respectfully submitted that the rejection of claim 9 under 35 U.S.C. 103(a) should be reversed.

As for the rejection of the dependent claims 12, 13 and 17, these claims are considered allowable by virtue of their dependencies from claim 9.

It is therefore respectfully submitted that the rejection of claims 9, 12, 13 and 17 under 35 U.S.C. 103(a) should be reversed.

(9) CONCLUSION

Appellant has invented a novel and inventive method of manufacturing a bending-resistant, torsionally yielding tubular profiled member as a transverse support for a twist beam rear axle of a passenger car.

The cited prior art does neither teach nor suggest the essential features as defined in claims 1 and 9 of the present invention but merely shows method steps which at some point may disclose an element of the present invention but not the novel and inventive combination. The question of obviousness is, however, not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole for which patentability is claimed. (In re Sernaker, 702 F.2d 989, 217 U.S.P.Q 1, C.A.F.C. 1983).

When considering the arguments set forth by the Examiner in the final rejection, appellant believes that the Examiner relied on hindsight in reaching his

obviousness determination. As the C.A.F.C stated in W.L. Gore, 721 F.2d at 1553, 220 U.S.P.Q. at 312-313) "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher". Thus, the use of hindsight reconstruction to pick and choose among isolated disclosures in the prior art to reject a claimed invention is ill-advised.

Therefore, the rejection of claims 1 and 9 on this prior art is not well taken.

For the above stated reasons, it is respectfully submitted that the rejection of the claims 1, 3, 6, 7, 9, and 12-17 issued by the Examiner on the references should be reversed.

Respectfully submitted,

By: 

Henry M. Feiereisen
Agent for Applicant
Reg. No.: 31,084

Date: December 9, 2003
350 Fifth Avenue
Suite 4714
New York, N.Y. 10118
(212) 244-5500
HMF:af

(10) APPENDIX

1. A method of manufacturing a bending-resistant, torsionally yielding tubular profiled member as a transverse support of a twist beam rear axle of a passenger car, the method comprising the steps of:

cold-forming a tube blank of tempering steel to a tubular profiled member with a torsionally yielding central longitudinal section of a U-shaped cross-section and with opposed torsion-proof end sections;

annealing transitional sections of the tubular profiled member located between the torsionally yielding central longitudinal section and the opposed torsion-proof end sections at a temperature level between 850 °C and 960 ° C;

hardening the tubular profiled member in water at a temperature above the AC3 point;

tempering the tubular profiled member at a temperature between 200 °C and 550 °C for a duration of more than five minutes;

subjecting the tubular profiled member at least to an outer surface hardening process; and

subjecting the tubular profiled member to further configuration processing steps for completing a twist beam rear axle.

3. The method according to claim 1, wherein the step of annealing is carried out at a temperature level of approximately 930° C.

6. The method according to claim 1, wherein the outer surface hardening is carried out by bombardment with balls.
7. The method according to claim 6, wherein the surface hardening is carried out by bombardment with steel balls.
9. A method of manufacturing a bending-resistant, torsionally yielding tubular profiled member as a transverse support of a twist beam rear axle of a passenger car, the method comprising the steps of:
cold-forming a tube blank of case hardening steel to a tubular profiled member with a torsionally yielding central longitudinal section of a U-shaped cross-section and opposed torsion-proof end sections;
case-hardening transitional sections of the tubular profiled member located between the torsionally yielding central longitudinal section and the opposed torsion-proof end sections during a heat treatment with carburization of the surface of the tubular profiled member and subsequent quenching;
subjecting the tubular profiled member at least to an outer surface hardening process; and
subjecting the tubular profiled member to further configuration processing steps for completing a twist beam rear axle.
12. The method according to claim 9, wherein the surface hardening is carried out by bombardment with balls.

13. The method according to claim 12, wherein the surface hardening is carried out by bombardment with steel balls.
14. The method according to claim 1, wherein the step of annealing is carried out at a temperature level between 902 °C and 950 °C.
15. The method according to claim 1, wherein the step of tempering is carried out at a temperature of approximately 280° C for a duration of approximately 20 minutes.
16. The method according to claim 1, wherein the tempering steel of the tube blank is of the specification 22MnB5.
17. The method according to claim 9, wherein the case-hardening steel of the tube blank is of the specification C15.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES



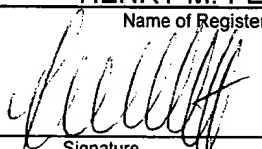
Docket No.: STREUBEL

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| Re PATENT Application of: |) |
| W. STREUBEL & W. CHRISTOPHLIEMKE |) Examiner: Wilkins III, H. D. |
| Appl. No: 09/651,431 |) Group Art Unit: 1742 |
| Filed: August 30, 2000 |) |
| For: METHOD OF MANUFACTURING A |) |
| BENDING-RESISTANT TORSIONALLY |) |
| YIELDING TUBULAR PROFILED MEMBER |) |
| AS A TRANSVERSE SUPPORT etc. |) |

BRIEF OF APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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| I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450", on December 9, 2003 . | |
| (Date) | |
| HENRY M. FEIEREISEN | |
| Name of Registered Representative | |
|  | 12-9-2003 |
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(2) RELATED APPEALS AND INTERFERENCES

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Claims 9, 12, 13 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bonjean et al. in view of Hoover, ASM Handbook Vol. 4 and ASM Handbook Vol. 5.

(4) STATUS OF AMENDMENTS

No amendment under 37 C.F.R §1.116 has been filed.

(5) SUMMARY OF INVENTION

The present invention refers to a method to produce a particular element in a twist beam axle for motor vehicles, namely a torsionally-yielding profiled member with rigid end sections, whereby a particular focus is directed to the properties of the transition sections between the midsection of the profiled member and the end sections thereof (paragraph bridging pages 7 and 8). As set forth in claim 1, after cold forming a tube blank to a profiled member, the transitional sections are subjected to an annealing process at a temperature level between 850 °C and 960 °C, before the profiled member is hardened above the AC3 point, tempered, and surface hardened (paragraph bridging pages 11 and 12). As an alternative, set forth in claim 9, the transitional sections are subjected, following the cold forming step, to a case-hardening process (page 7, lines 3, 4). In either embodiment of the present invention, a tubular profiled member for a twist beam rear axle is produced that is bending-resistant and torsionally yielding, with the transitional sections between the midsection of the profiled member and the end sections thereof exhibiting desired properties.

(6) ISSUES

Issue 1-Whether claims 1, 3, 6, 7, 14, 15 and 16 are patentable under 35 U.S.C. §103 over Bonjean et al. in view of Hoover, Metals Handbook Vol. 1 and ASM Handbook Vol. 5?

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As to the rejection applied against claims 3, 6, 7, 14-16 under 35 U.S.C. §103(a), it is appellant's intention that these claims stand or fall together with claim 1.

As to the rejection applied against claims 12, 13, 17 under 35 U.S.C. §103(a), it is appellant's intention that these claims stand or fall together with claim 9.

(8) ARGUMENT

Issue 1-Whether claims 1, 3, 6, 7, 14, 15 and 16 are patentable under 35 U.S.C. §103 over Bonjean et al. in view of Hoover, Metals Handbook Vol. 1 and ASM Handbook Vol. 5?

Bonjean et al. describes a process for producing a U-shaped semi-rigid, one-piece axle, using a single length of a metal tube, in which the central region thereof is deformed so as to impart thereto the form of a rectilinear shaped member which forms the transverse portion of the axle. The tubular portion

beyond each end of the profiled region is bent substantially at a right angle, to form the axle arms. Fixed at the ends of the axle arms are stub axles on which the wheels will be mounted (col. 2, lines 17 to 29). As further noted in col. 1, lines 15 to 17, the axle according to Bonjean is made by a shaping process only, whereby the focus of the disclosure is directed to the characteristics of the transverse portion and the axle arms. As noted in col. 4, lines 29 to 39, "*an axle [] was produced, which complies with the following characteristics:*" and Bonjean et al. then continues to specify the properties of the transverse portion and axle arms. Nothing relates in any way in this passage nor in any other passage of the disclosure to the area of the bends between the transverse portion and the axle arms. In other words, Bonjean et al. is completely silent as to the properties of the bent sections, i.e. transition sections. In addition, Bonjean et al. fails to describe any heat treatment steps, let alone with respect to the bent sections.

The Examiner does point out, however, that Bonjean et al. "*teach (see col. 4, lines 43-47) that further total or localized heat treatment may be performed*". Hereby, the Examiner appears to ignore that Bonjean et al. contemplates the application of a heat treatment only **after** the axle has been produced by the shaping process. Apart from the fact that Bonjean et al. fails to provide any specifics other than setting forth that heat treatment is available to enhance mechanical characteristics, the heat treatment is intended, if at all, only after the axle has been produced. Moreover, as Bonjean et al. is concerned with the characteristics of the transverse portion and the axle arms (see col. 4, lines 29 to 39) only, a person skilled in the art will not be motivated by the

disclosure to subject the bent sections to a heat treatment process, let alone to provide a heat treatment step at the particular temperature ranges in the combination of method steps, as set forth in claim 1.

The Examiner appears to use appellant's own disclosure and appellant's recognition of the criticality of the transition sections, when opining on page 8, paragraph 4 of the Final Office Action that the artisan would apply the appropriate hardening process for the transitional sections "*because the transitional sections would be subjected to the worst fatigue conditions*". Bonjean et al. does neither expressly nor implicitly assign any criticality to the bent sections. It is believed that the Examiner misinterpreted the Bonjean et al. reference, and fell in this case into the hindsight trap "wherein that which only the inventor taught is used against its teacher". In particular, the Examiner failed to appreciate appellant's recognition of a problem related to the transitional sections that Bonjean et al. was completely unaware, and failed to appreciate appellant's discovery of a solution to this problem.

The Examiner asserts further that Bonjean et al. fails to teach a deformation step through cold-forming (page 2, third line from the bottom of the Final Office Action) but refers to the Hoover et al. reference and states that Hoover et al. "*teach [] a conventional method of deforming a tube that is conventionally called press forming*". Hoover et al. describes a method of forming a spray nozzle along a fluid conduit by forming a hole into a tube, providing a countersink for the hole, and depressing inwardly a portion of the tube along a line passing over the hole. While acknowledging that Bonjean et al. merely

teaches shaping the U-shaped axle by deformation, without providing any further information (page 8, last paragraph of Final Office Action), the Examiner contends that an artisan would be motivated to look at Hoover et al. Appellant respectfully disagrees. Although Hoover et al. describes a depressing step, this step is applied in conjunction with the provision of a hole so that the depression and the hole together form a spray nozzle (col. 3, 3 to 5). It is applicants' belief that a person skilled in the art of twist beam rear axles of motor vehicles, as the present invention is directed to, would not consider a reference that relates to spray nozzles, and combine the Bonjean et al. and Hoover et al. references in the manner suggested by the Examiner, because the provision of holes in the structure, as taught by Hoover et al., would contradict the desire to provide transitional sections with suitable properties. It is well established that there must be some motivation to combine the references to create the case of obviousness, and a showing that a skilled artisan, confronted with the problems as the inventor, would select the elements from the cited prior art references. It is applicant's contention, that the Examiner failed to explain the motivation one with no knowledge of applicant's invention would have to combine the references in a manner suggested.

The Examiner asserts further that Bonjean et al. fails to teach an annealing step (page 2, penultimate line of the Final Office Action) but refers to Metals Handbook Vol. 1 and in particular to page 390, col. 3, last paragraph, where a reference is made to a heating step to about 900 °C, and then contends that an artisan would be motivated to look at Metals Handbook Vol. 1 *"to apply*

the annealing step [] to [] the transitional section as claimed." Apart from the fact that the referred-to passage in Metals Handbook Vol. 1 merely states general teaching about subjecting carbon steels to heat treatment, it is noted that the application of a heat treatment step per se is not the subject matter of claim 1, as the Examiner appeared to imply, as the Examiner ignored the nexus between the annealing step and the transitional sections. As stated above, claim 1 sets forth a particular combination of process steps to make a profiled member for a twist beam rear axle, and in particular is concerned with the area of the transitional sections which are subjected to an annealing process at a temperature level between 850 °C and 960 °C. Moreover, appellant disagrees that an artisan would be motivated to make the combination, as suggested by the Examiner, because Bonjean et al. fails to recognize the criticality of the transitional (bent) sections, and indeed, fails to make any reference to characteristics of the bent sections. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. In re Gordon, 733 F.2d at 902.

It is also noted by appellant that the Examiner applied 4 prior art references in an attempt to produce the present invention. This is an indication that the Examiner tried to piece together the teachings of the prior art to render the claimed invention obvious. However, it is well established that the fact that individual elements of the present invention can be found in the prior art is not determinative as to the question of obviousness. As stated by the Federal Circuit

in *In re Rouffet*, 47 USPQ2d, 1453, 1457 “Most, if not all, inventions are combinations and mostly of old element. Therefore, an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be an illogical and inappropriate process by which to determine patentability.”

Thus, there must be some motivation to combine the references to create the case of obviousness, and a showing that a skilled artisan, confronted with the problems as the inventor, would select the elements from the cited prior art references.

It is applicant's contention, that the Examiner failed to make a prima facie case of obviousness and failed to explain the motivation one with no knowledge of applicant's invention would have to combine the references in a manner suggested.

It is therefore respectfully submitted that the rejection of claim 1 under 35 U.S.C. 103(a) should be reversed.

As for the rejection of the dependent claims 3, 6, 7, 14, 15 and 16, these claims are considered allowable by virtue of their dependencies from claim 1.

It is therefore respectfully submitted that the rejection of claims 1, 3, 6, 7, 14, 15 and 16 under 35 U.S.C. 103(a) should be reversed.

Issue 2-Whether claims 9, 12, 13 and 17 are patentable under 35 U.S.C. §103 over Bonjean et al. in view of Hoover, Metals, ASM Handbook Vol. 4 and ASM Handbook Vol. 5?

The Bonjean et al. and Hoover et al. references have been discussed above in detail, and the same arguments apply here so that a repetition thereof is omitted for sake of convenience. Claims 9, 12, 13 and 17 are patentable over the applied references in view of the shortcomings of Bonjean et al. and Hoover et al., as discussed above.

The Examiner acknowledged that Bonjean et al. fails, i.e., to teach a case hardening step (page 6, 2nd paragraph of the Final Office Action) but refers to Metals Handbook Vol. 5 and in particular to page 948-949, which sets forth a glossary of terms to define, among others, the term "case hardening". The Examiner contends that "*it would have been obvious to one of ordinary skill in the art to have made the axle of Bonjean et al from a case hardening steel in order to ensure the ability of the axle to be surface hardened by a case hardening method.*" Apart from the fact that the referred-to passage in Metals Handbook Vol. 5 merely provides a general definition of the term "case hardening", it is noted that the application of a case hardening step per se is not the subject matter of claim 9, as the Examiner appeared to imply, as the Examiner ignored the nexus between the case hardening step and the transitional sections.

Moreover, it is appellant's contention that an artisan would not be motivated to make the combination, as suggested by the Examiner, because

Bonjean et al. fails to recognize the criticality of the transitional (bent) sections, and indeed, fails to make any reference to characteristics of the bent sections.

It is therefore respectfully submitted that the rejection of claim 9 under 35 U.S.C. 103(a) should be reversed.

As for the rejection of the dependent claims 12, 13 and 17, these claims are considered allowable by virtue of their dependencies from claim 9.

It is therefore respectfully submitted that the rejection of claims 9, 12, 13 and 17 under 35 U.S.C. 103(a) should be reversed.

(9) CONCLUSION

Appellant has invented a novel and inventive method of manufacturing a bending-resistant, torsionally yielding tubular profiled member as a transverse support for a twist beam rear axle of a passenger car.

The cited prior art does neither teach nor suggest the essential features as defined in claims 1 and 9 of the present invention but merely shows method steps which at some point may disclose an element of the present invention but not the novel and inventive combination. The question of obviousness is, however, not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole for which patentability is claimed. (In re Sernaker, 702 F.2d 989, 217 U.S.P.Q 1, C.A.F.C. 1983).

When considering the arguments set forth by the Examiner in the final rejection, appellant believes that the Examiner relied on hindsight in reaching his

obviousness determination. As the C.A.F.C. stated in *W.L. Gore*, 721 F.2d at 1553, 220 U.S.P.Q. at 312-313) "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher". Thus, the use of hindsight reconstruction to pick and choose among isolated disclosures in the prior art to reject a claimed invention is ill-advised.

Therefore, the rejection of claims 1 and 9 on this prior art is not well taken.

For the above stated reasons, it is respectfully submitted that the rejection of the claims 1, 3, 6, 7, 9, and 12-17 issued by the Examiner on the references should be reversed.

Respectfully submitted,

By: 

Henry M. Feiereisen
Agent for Applicant
Reg. No.: 31,084

Date: December 9, 2003
350 Fifth Avenue
Suite 4714
New York, N.Y. 10118
(212) 244-5500
HMF:af

(10) APPENDIX

1. A method of manufacturing a bending-resistant, torsionally yielding tubular profiled member as a transverse support of a twist beam rear axle of a passenger car, the method comprising the steps of:

cold-forming a tube blank of tempering steel to a tubular profiled member with a torsionally yielding central longitudinal section of a U-shaped cross-section and with opposed torsion-proof end sections;

annealing transitional sections of the tubular profiled member located between the torsionally yielding central longitudinal section and the opposed torsion-proof end sections at a temperature level between 850 °C and 960 ° C;

hardening the tubular profiled member in water at a temperature above the AC3 point;

tempering the tubular profiled member at a temperature between 200 °C and 550 °C for a duration of more than five minutes;

subjecting the tubular profiled member at least to an outer surface hardening process; and

subjecting the tubular profiled member to further configuration processing steps for completing a twist beam rear axle.

3. The method according to claim 1, wherein the step of annealing is carried out at a temperature level of approximately 930° C.

6. The method according to claim 1, wherein the outer surface hardening is carried out by bombardment with balls.
7. The method according to claim 6, wherein the surface hardening is carried out by bombardment with steel balls.
9. A method of manufacturing a bending-resistant, torsionally yielding tubular profiled member as a transverse support of a twist beam rear axle of a passenger car, the method comprising the steps of:
 - cold-forming a tube blank of case hardening steel to a tubular profiled member with a torsionally yielding central longitudinal section of a U-shaped cross-section and opposed torsion-proof end sections;
 - case-hardening transitional sections of the tubular profiled member located between the torsionally yielding central longitudinal section and the opposed torsion-proof end sections during a heat treatment with carburization of the surface of the tubular profiled member and subsequent quenching;
 - subjecting the tubular profiled member at least to an outer surface hardening process; and
 - subjecting the tubular profiled member to further configuration processing steps for completing a twist beam rear axle.
12. The method according to claim 9, wherein the surface hardening is carried out by bombardment with balls.

13. The method according to claim 12, wherein the surface hardening is carried out by bombardment with steel balls.
14. The method according to claim 1, wherein the step of annealing is carried out at a temperature level between 902 °C and 950 °C.
15. The method according to claim 1, wherein the step of tempering is carried out at a temperature of approximately 280° C for a duration of approximately 20 minutes.
16. The method according to claim 1, wherein the tempering steel of the tube blank is of the specification 22MnB5.
17. The method according to claim 9, wherein the case-hardening steel of the tube blank is of the specification C15.